

NOTES ON AIROSPERMA (RUBIACEAE), WITH A NEW SPECIES FROM FIJI

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THE GENUS *Airosperma* Lauterbach & K. Schumann has not been widely discussed by taxonomists concerned with Rubiaceae of the western Pacific, although it has recently been studied by botanists revising the Rubiaceae for *Flora Malesiana* (Ridsdale, Bakhuizen van den Brink, & Koek-Noorman, 1972). Although a formal revision of the genus would be premature, notes on the distribution, morphological variation, pollen, and nomenclature of *Airosperma* species are presented here.

Future workers will have to deal with the problematic tribal affinity of *Airosperma*. I previously (Darwin, 1979) referred the genus to the tribe Alberteae, for the most part following earlier opinion. Interested readers should consult that discussion for a historical outline as well as for an enumeration of the morphological characters that define *Airosperma* and suggest a relationship with *Boholia* Merr. from the Philippines.

As interpreted here, *Airosperma* comprises six species, four in New Guinea and two in Fiji. Schumann and Lauterbach (1900) established the genus with two species, *A. psychotrioides* and *A. ramuense*, both from New Guinea. I have already designated *A. psychotrioides* the lectotype species (Darwin, 1979); of the two original species, it is by far the better collected. In addition, it was provided by its authors with the more expanded description and was the only species illustrated. Valeton added a third species in 1912, and S. Moore a fourth in 1927. Smith (1945) later transferred Gillespie's monotypic Fijian genus *Abramsia* to *Airosperma*. A sixth described species of *Airosperma*, also from Fiji, is presented here as new.

It has been pointed out (Darwin, 1979) that nearly all genera of Pacific Rubiaceae center in Malesia, or at least their closest allies can usually be found there. To varying degrees, many of those genera have probably expanded their geographic ranges into the Pacific by migrating southward over an island chain now represented by the Solomon Islands, the New Hebrides, Fiji, and associated smaller islands. Smith (1979, p. 25 *et seq.*) has outlined in a general way the probable geologic events that made such a migration route possible, and pointed out that such a route may have been only intermittently present. If archipelagoes have come and gone along the eastern edge of the Australian continental plate, it would not seem unusual to find two closely related species of *Airosperma* in Fiji, well isolated from the New Guinean members of the genus. It may well be that the southernmost species of *Airosperma* trace their ancestry to one or a few diaspores reaching Fiji by

means of long-distance dispersal, but there is no apparent adaptation for such dispersal, except, possibly, floating fruits. The more likely hypothesis, it seems to me, is that other geographically intermediate populations have become extinct, leaving survivors only at the extreme ends of a once more continuous range.

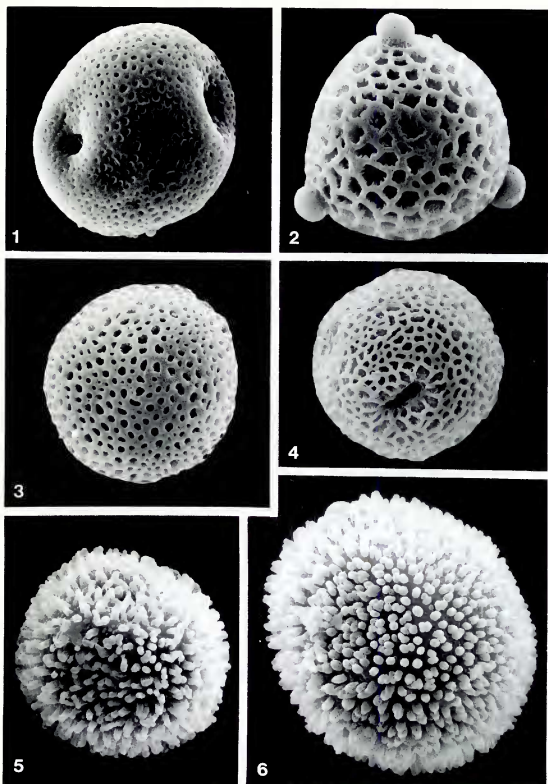
A similar distributional pattern is exhibited by the genus *Mastixiodendron* Melchior, in which three Fijian species are quite isolated from four other species in the Solomon Islands, New Guinea, and the Moluccas; the genus is absent only from the New Hebrides, although it may once have occurred there or on an earlier island group in the same area.

Airosperma Lauterb. & K. Schum. in K. Schum. & Lauterb. Fl. Deutschen Schutzgeb. Südsee, 565. 1900; Krause in Engler & Prantl, Nat. Pflanzenfam. Nachtr. 3: 328. 1908; A. C. Sm. Jour. Arnold Arb. 26: 107. 1945, *ibid.* 36: 288. 1955.

Abramsia Gillespie, Bishop Mus. Bull. 91: 27. 1932.

KEY TO SPECIES OF AIROSPERMA

1. Branchlets usually more than 5 mm. broad toward apex; leaves with at least 15 secondary nerves and petioles more than 3 mm. broad near middle; inflorescences frequently with as many as 200 flowers, the pedicels more than 5 mm. long; New Guinea. 1. *A. grandifolium*.
 1. Branchlets usually less than 4 mm. broad toward apex; leaves with fewer than 15 secondary nerves and petioles less than 3 mm. broad near middle; inflorescences usually with fewer than 200 flowers, the pedicels less than 5 mm. long; New Guinea and Fiji.
 2. Stipules frequently more than 4 mm. long; pedicels not conspicuously elongating in fruit; corolla limb less than 4 mm. broad; anthers apiculate by the produced connectives; mature fruits less than 10 mm. long and 6 mm. broad; New Guinea.
 3. Calyx lobes at least 2.5 mm. long, frequently much longer.
 4. Leaf blades lanceolate to broadly elliptic; inflorescences usually with fewer than 50 flowers. 2. *A. psychotrioides*.
 4. Leaf blades elliptic to broadly obovate; inflorescences usually with more than 50 flowers. 3. *A. fuscum*.
 3. Calyx lobes less than 2 mm. long. 4. *A. ramuense*.
 2. Stipules usually less than 3 mm. long; pedicels conspicuously elongating in fruit; corolla limb usually more than 4 mm. broad; anthers emarginate to obtuse or acute at apex, not apiculate; mature fruits at least 10 mm. long, usually more than 8 mm. broad; Fiji.
 5. Corolla tube less than 3 mm. long, the throat glabrous. 5. *A. trichotomum*.
 5. Corolla tube more than 3 mm. long, the throat densely villose. 6. *A. vanuense*.
1. *Airosperma grandifolium* Valetton, Nova Guinea Bot. 8: 760. 1912 (as *grandifolia*); Bot. Jahrb. 61: 32. 1927 (as *grandifolia*). FIGURE 1.



FIGURES 1-6. Scanning electron micrographs of pollen grains from species of *Airosperma*: 1, *A. grandifolium* (from NGF 48274), $\times 1000$; 2, *A. psychotrioides* (from Brass 23535), $\times 1000$; 3, *A. ramuense* (from NGF 39326), $\times 1000$; 4, *A. aff. ramuense* (from Brass 3884), $\times 640$; 5, *A. trichotomum* (from Degener 14549), $\times 1000$; 6, *A. vanuense* (from Smith 1849), $\times 1200$.

Probably the most distinct species of *Airosperma*, readily distinguished by its large (20–40 cm. long \times 9–18 cm. wide), elliptic to obovate leaf blades, which taper to a short, stout petiole. The inflorescences are much congested, often with as many as 300 relatively long-pedicellate flowers. Like flowers of other *Airosperma* species in New Guinea, those of *A. grandifolium* have the same relative calyx and corolla size, a dense ring of white hairs at the corolla throat, and short-apiculate anthers. As discussed below, the pollen of this and all other *Airosperma* species from New Guinea is 3- to 4-porate and tectate-perforate to semitectate.

Collections of *Airosperma grandifolium* are very few. Valetton (1912, cited above) founded the species on a single collection, *Gjellerup* 239, collected at "Salzquelle am Beguwri" (Beguuri River, Djajapura, West New Guinea (Irian Barat)). Valetton evidently studied the material at Buitenzorg (now Bogor, see Valetton, *op. cit.*, p. 755); I have seen neither the holotype (at BO?) nor any isotypes. I have not examined two other collections referred to this species by Valetton (1927, cited above), *Schlechter* 20175 and *Ledermann* 8351, both from the Sepik River drainage of Papua New Guinea. More than a dozen other collections have since been annotated as *A. grandifolium*, but most of the specimens previously attributed to this species are better referred to other genera on the basis of the presence of rapoid crystals, basally attached ovules, or valvate corolla lobes. Many such excluded collections may be allies of *Psychotria*, some species of which bear a strong superficial resemblance to *A. grandifolium*. Only one specimen seen, *NGF* 48274 (cited below), conforms to Valetton's precise description in nearly every detail, except that the stipules of *A. grandifolium* were described as being strongly caducous, whereas in the collection examined they are relatively persistent. *NGF* 48274 was collected in the West Sepik District of Papua New Guinea, reasonably close to the locality given by Valetton for the type, and agrees also in its label information—the specimen taken from a herbaceous shrub about 1 meter tall with white flowers.

Valetton reported the type collection as having only flower buds, these much damaged by insects. This is also true of the single collection I have seen. Dr. C. E. Ridsdale (pers. comm.) suggests that recent additional collections of *Airosperma grandifolium* may have been sent to Kew and Leiden, but that they have not as yet been processed or distributed. Collections with mature, undamaged flowers and fruits would be very welcome.

SPECIMEN EXAMINED. Papua New Guinea. WEST SEPIK: sago swamp, N. of Kilifas Village, 305 m. alt., *NGF* 48274 (*Foreman & Kumul*) (LAE).

2. *Airosperma psychotrioides* Lauterb. & K. Schum. in K. Schum. & Lauterb. Fl. Deutschen Schutzgeb. Südsee, 565. t. XXI. 1900; Valetton, Bot. Jahrb. 61: 32. 1927 (as *psychotroides*); Merr. & Perry, Jour. Arnold Arb. 26: 14. 1945. FIGURE 2.

This species is recognizable by its relatively few-flowered inflorescences (I have counted 15 to 40 flowers in each), and its calyces, which are 2.5–6 mm. long, the subulate to narrowly oblanceolate lobes considerably longer

than the cupular base. This and the two following species are distinct from *Airosperma grandifolium* in their smaller leaves and relatively slender petioles, among other characters.

Lauterbach and Schumann based *Airosperma psychotrioides* on four collections made by Lauterbach, all from Kaiser Wilhelmsland, all presumably deposited in the Berlin Herbarium and now destroyed. I have located duplicates of three of those collections at the Wrocklaw Herbarium (WRSL) and here designate *Lauterbach 510* as lectotype, cited below. The lectotype is noted (on a Berlin Museum label) as having been taken from Sattelberg, Kekagalla, at an altitude of 970 meters on 22/26 June, 1890; a Herb. Lauterbach label on the single isoelectotype (also at WRSL) adds that the plant was a shrub with greenish flowers. *Lauterbach 510* represents flowering material only, flowers being much more abundant on the lectotype than on the isoelectotype.

Information from herbarium labels of other collections describes this species as a "woody herb" or erect shrub to 2 meters tall growing in rich rain forests from 20 to more than 1800 meters altitude. The bark is variable, smooth or flaking, the wood straw colored and sometimes with white latex; the flowers are usually greenish white when young, at maturity cream-white and often with brownish or pale purple centers. The young fruits are greenish white, eventually becoming bright blue. Flowering and fruiting collections have been gathered throughout the year.

Further investigation into the *Airosperma psychotrioides* "complex" must also take into account floral dimorphism, possibly associated with out-breeding mechanisms. In the herbarium material studied, there are two flower types. In the first, growth of the style keeps pace with the elongation of the corolla tube; in late bud the stigma is at the corolla throat and is to varying degree exerted beyond the limb after separation of the corolla lobes. The mature stigma lobes are about 1 mm. long and widely divergent. In the same flowers, the anthers are much reduced (to 1 mm. long) and apparently sterile. Collections with flowers of this type include *NGF 37976*, *Schodde & Craven 4635* and *4328*, and the type of *A. fuscum* (see below). In the second flower type, the anthers are at least 1.5 mm. long and shed abundant pollen before the corolla bud opens; in such flowers the style was never observed to be more than about 2 mm. long. The flowers of *A. psychotrioides* thus appear to be either functionally staminate or pistillate. As far as I am able to determine, these two floral morphologies are confined to separate plants and suggest dioecism in this species.

SPECIMENS EXAMINED. **Papua New Guinea.** MADANG: Amaiba River, *NGF 45871* (Foreman et al.) (LAE), *NGF 45890* (Foreman et al.) (CANB, LAE); Ramu River, tributary 9, *Lauterbach 3112* (WRSL); upper course of Gogol River, *Lauterbach 1124* (WRSL). MOROBE: vicinity of Kaiapit Mission, *Clemens 10756 bis* (A); Umi River, Markham Valley, *Brass 32539* (A, CANB, K); Boana, *Clemens 41578* (A); Atzera Range, *NGF 11923* (Henty) (A); Busom River, *NGF 37976* (Katik) (A, LAE); vicinity of Butibum River, *Harley 11634* (A, LAE); Masba Creek, ca. 3 miles S. of Pindiu, *Hoogland 8873* (A, CANB, K, LAE); Sattelberg, *Weinland 312* (BRI, WRSL); Sattelberg, Kekagalla, *Lauterbach 510* (WRSL, lectotype & isoelectotype); Matap, *Clemens 41091* (A). GULF: ca. 1 mile E. of

junction of Vailala and Lohiki rivers, *Schodde & Craven* 4328 (A, CANB); hill on southwest margin of junction of Kapau and Tauri rivers, *Schodde & Craven* 4635 (A, CANB, LAE). CENTRAL: Dieni, Ononge Road, *Brass* 3879 (A, BRI, NY); Mafulu, *White* 572 (BM). NORTHERN: Pongani Valley, vicinity of Dareki Village, *Pullen* 5721 (CANB); between Budi and Anara barracks, *Hoogland* 4622 (A, CANB, K). MILNE BAY: junction Ugat and Mayu rivers, *NGF* 28928 (*Streimann*) (A); Mayu River, ca. 15 km. WNW. of Biniguni, *Pullen* 8363 (CANB); north slopes, Mt. Dayman, *Brass* 23535 (A, CANB, LAE, US), 23657 (A, CANB, LAE, US).

3. *Airosperma fuscum* S. Moore, Jour. Bot. **65**: 266. 1927 (as *fusca*); in C. T. White, Jour. Arnold Arb. **10**: 268. 1929 (as *fusca*).

The type of *Airosperma fuscum* is *Brass* 1050, the only collection seen by Moore, collected at Hohoro, Vailala River, Gulf District, Papua, from a weak shrub 1 meter tall growing on ridges in open rain forest at an altitude of 300 feet. The label of the holotype describes the flowers as white with pink centers, the fruits as yellow. In the sense of its type, *A. fuscum* appears to be reasonably distinct from *A. psychotrioides*, especially in its leaf blades, which may be more than 2 cm. wider and more strongly obovate, and in its inflorescences with as many as 100 flowers. Moore further differentiated *A. fuscum* on the basis of its leaves drying darker and its flowers with pink centers; in those two features I have found numerous collections intermediate between *A. fuscum* and *A. psychotrioides* (*sensu typorum*). To judge from the Papuan collections at hand, it is probable that additional populations of the *A. psychotrioides* alliance will be found in southeastern New Guinea. No collections as yet approach the type of *A. fuscum* in every regard, but additional material from that type locality would greatly help in determining the proper taxonomic status of *A. fuscum*, very possibly supporting its recognition at the rank of species. Some aspects of the floral morphology of the present species are discussed under *A. psychotrioides*.

SPECIMEN EXAMINED. **Papua New Guinea.** GULF: Hohoro, Vailala River, *Brass* 1050 (BM, holotype; A, BRI, K, isotypes).

4. *Airosperma ramuense* Lauterb. & K. Schum. in K. Schum. & Lauterb. Fl. Deutschen Schutzgeb. Südsee, 566. 1900 (as *ramuensis*); Valetton. Bot. Jahrb. **61**: 32. 1927 (as *ramuensis*); Merr. & Perry, Jour. Arnold Arb. **26**: 14. 1945. FIGURES 3, 4.

This species, the second described by Lauterbach and Schumann, was based on a single collection, *Rodatz & Klink* 206, from the Bismarck Mountains (Western and Eastern Highlands of Papua New Guinea). I have not examined the holotype, which presumably was deposited in the Berlin Herbarium and is now destroyed; if no isotypes exist, then designation of a neotype will be required. However, based on the excellent original description, I have been able confidently to refer a number of more modern collections to *Airosperma ramuense* and to distinguish that taxon from the two preceding species. Inflorescences of *A. ramuense* frequently have more than 50 flowers (usually about 100), and calyces hardly 2 mm. long. In *A. psychotrioides*

the inflorescences have up to 50 flowers; in *A. psychotrioides* and *A. fuscum* the calyces are longer than 2 mm., frequently as long as 6 mm. Those same differences were emphasized by Lauterbach and Schumann and by Valetton (1927, cited above). Attention has also been drawn to the generally larger leaves of the present species, which often dry nearly black; however, I have found too much variation in leaf size, shape, and drying quality to regard such characters as being very useful in drawing up an analytical key to *A. ramuense* and *A. psychotrioides*.

From label data, the species may be described as a shrub to nearly 2 meters tall, growing in lowland or hillside rain forests at altitudes from 30 to 610 meters. The few collections available suggest that the species may be found in flower or fruit throughout the year. The fruits are described as greenish, becoming purple at maturity, and thus contrasting with those of *Airosperma psychotrioides*, which are frequently described as bright blue.

Only specimens from the Sepik area of Papua New Guinea can confidently be referred to *Airosperma ramuense*. One collection from the Central District, *Brass 3884*, was included in the present species by Merrill and Perry (1945, cited above), but it is well outside its otherwise recorded range. It is composed of flowering material resembling *Airosperma ramuense* but differs from the other specimens examined in its somewhat longer (to 30 cm.) leaves, which are oblong in outline, and in its calyces, the lobes of which may be proportionately longer. Furthermore, the inflorescences are noted as being axillary, on branchlets, or "low down on the stem." These lateral inflorescences have peduncles (modified axillary branchlets?) to 2 cm. long, a feature not observed in any other collection here assigned to the genus *Airosperma*. The flowers of *Brass 3884* are 5-merous, while those of specimens from the Sepik area are usually 4-merous. A new species may be represented here, but I cannot describe it formally without more material. It should be noted that the pollen from *Brass 3884* is essentially identical with that of the one other specimen of *A. ramuense* examined, *NGF 39326* (FIGURES 3, 4).

SPECIMENS EXAMINED. **Papua New Guinea.** WEST SEPIK: Kriisa-Vanim Road, *NGF 39326* (*Streimann & Kairo*) (A, LAE). EAST SEPIK: Prince Alexander Range, SE. of Mt. Turu, vicinity of Ambakanja Village, *Pullen 1524* (CANB); head of Giligama Creek, between Kuminim and Lawon villages, W. of Wewak, *Pullen 1357* (CANB). CENTRAL: Dieni, Ononge Road, *Brass 3884* (A, NY).

5. *Airosperma trichotomum* (Gillespie) A. C. Sm. Jour. Arnold Arb. 26: 108. 1945, *ibid.* 36: 288. 1955; J. W. Parham, Pl. Fiji Is. 187. 1964, ed. 2. 264. 1972. FIGURE 5.

Psychotria Seem. Bonplandia 9: 257. 1861.

Psychotria insularum sensu A. Gray, Proc. Am. Acad. 5: 319. 1862, Bonplandia 10: 36. 1862; Seem. Viti, 437. 1862; non A. Gray, 1858.

Abramsia trichotoma Gillespie, Bishop Mus. Bull. 91: 29. fig. 31. 1932; Fosberg, Bull. Torrey Bot. Club 67: 422. 1940, Sargentia 1: 125. 1942.

This species was well described by Gillespie under *Abramsia* and was

accompanied by a lengthy discussion concerning the possible tribal relationships of that genus. Similar, although much expanded, commentary was offered by Smith in 1945, at which time he transferred Gillespie's genus to *Airosperma*, where it belongs. As interpreted here, *Airosperma trichotomum* is positively referable only to the island of Viti Levu, Fiji, where it has been collected many times.

The type of *Abramsia trichotoma* is Gillespie 3388, cited below. In his published account, Gillespie gave the locality of the type collection as "Viti Levu, Naitasiri Province, vicinity of Nasinu, 14 kilometers (9 miles) from Suva." However, labels (in Gillespie's hand) accompanying the holotype and isotypes give the locality as the slopes of Mt. Lomalangi ("Loma Langa"), vicinity of Nandarivatu, November 12, 1927; notes with one isotype (uc) give the altitude as 1000 meters. Since collecting numbers adjacent to Gillespie 3388 (and gathered on the same day) are also from the Nandarivatu area (A. C. Smith, pers. comm.), the label data must be taken as correct.

Notes accompanying other collections portray this species as a shrub or small tree, occasionally to a height of 15 meters, growing in dense or secondary forests on wooded ridges or along streambanks at altitudes from 15 to 1250 meters. The flowers are described as white or yellow, the fruits as green, becoming white and sometimes tinged with yellow. Fruiting specimens have been gathered throughout the year, but I have seen no flowering material taken between the months of May and October. Native names recorded are "maskarawa" (Smith 4426), "malinimbia" (Gillespie 2652), and "silasila" (St. John 18285); notes with the last collection further state that the plant is used locally as a cathartic.

This and the following species differ from the New Guinean representatives of *Airosperma* in their smaller stipules, broader corolla limbs, anthers without conspicuously apiculate apices, and larger fruits borne on pedicels that elongate as the fruits mature. The present species is very closely allied to *A. vanuense*, differing in its shorter corollas, which are essentially glabrous within. A close relationship between the Fijian taxa is also suggested by their intectate pollen; the pollen of the Papuan species is variously tectate (FIGURES 1-6). In this and another study (Darwin, 1977), pollen was found to be exceedingly helpful in suggesting that Fijian species of some Malesian Rubiaceae may be traceable to one ancestral population. Such pollen characters will undoubtedly prove useful in similar studies of Pacific Rubiaceae.

SPECIMENS EXAMINED. **Fiji.** Viti Levu. MBA: Mt. Koroyanitu (Mt. Evans), *Fiji Dept. Agr.* 14148 (BISH); slopes of Mt. Nairoso, eastern flank of Mt. Evans Range, *Smith* 4074 (A, BISH, BRI, K, NY, US), 4426 (A, BISH, BRI, K, NY, US); Nauwanga, *Degener* 14549 (A, BISH, NY, UC, US), 14740 (A, BISH, NY, US); vicinity of Nandarivatu, *Degener* 14807 (A, NY, US), *Degener & Ordenez* 15542 (A, BISH, BRI, NY, UC, US), *Parks* 20577 (UC); slopes of Mt. Lomalangi, *Gillespie* 3388 (BISH, holotype of *Abramsia trichotoma*; BISH, GH, UC, isotypes), 3686 (BISH, UC, US); Mt. Lomalangi, *Gillespie* 4065 (BISH, GH, UC), 4364 (BISH, UC), *Greenwood* 872 (A, K, UC), *Tothill* 266 (K), 267 (K); hills E. of Nandala Creek, ca. 3 mi. S. of Nandarivatu, *Smith* 5935 (A, BISH, BRI, K, NY, US); Navai Ranges, *Fiji Dept. Agr.* 2319 (B. E. Parham) (A); west and south slopes of Mt. Tomanivi

(Mt. Victoria), *Smith 5743* (A, BISH, BRI, K, US); Mt. Tomanivi (Mt. Victoria), *Degener et al. 32080* (BISH), *32086* (BISH). NANDRONGA AND NAVOSA: northern portion Rairaimatuku Plateau between Nandrau and Nanga, *Smith 5517* (A, BISH, BRI, K, NY, US). SERUA: hills W. of Waivunu Creek between Ngaloa and Korovou, *Smith 9473* (BISH, US); Ngaloa Nature Reserve, *Fiji Dept. Agr. 16592* (BISH). NAMOSI: near summit of Mt. Naitarandamu, *Gillespie 3315* (BISH, NY, UC); northern base of Korombasambasanga Range, drainage of Wainavidrau Creek, *Smith 8634* (BISH, GH, NY, UC, US); vicinity of Namosi, *Gillespie 2652* (BISH), *Parks 20275* (BISH, UC, US), *Seemann 250* (GH, K); Vui Voma, *Fiji Dept. Agr. 11680* (BISH, BRI). NAITASIRI: Wainimala Valley, Rarandawai to Nairairai-kinasavu, Wainisavulevu Creek, *St. John 18285* (A, BISH); Waimanu region, southeastern Nasle, *Fiji Dept. Agr. 15427* (BRI, MASS); track to Mendrausuthu Range, *Fiji Dept. Agr. 15025* (A, BRI, UC). TAILEVU: Ndakuivuna, *Fiji Dept. Agr. 11016* (BISH). VITI LEVU, without further locality, *Tothill 268* (K). FIJI, without further locality, *Fiji Dept. Agr. L. 13370* (Berry) (BRI).

6. *Airopserma vanuense* S. Darwin, sp. nov.

FIGURE 6.

Frutex (vel arbor gracilis?) praeter inflorescentiam et partes juveniles plus minusve glaber; ramulis subteretibus apicem versus 1–2 mm. diametro fuscis; stipulis maturis persistentibus membranaceis ovatis vel late deltoideis ad 1.5 mm. longis apiculatis sed saepissime demum bifidis vel erosis, extus puberulis pilis minutis et dispersis intus pubescentiis densioribus et ad basem cum aliquot glandibus gracilibus circiter 0.2×0.1 mm.; petiolis gracilibus semiteretibus vel aliquantum canaliculatis 5–40 mm. longis ad medium circiter 1 mm. latis glabris; foliorum laminis membranaceis ellipticis vel oblongis vel aliquantum oblanceolatis $5\text{--}15 \times 2\text{--}8$ cm. apice acutis saepe obtuse vel acutissime acuminatis basi anguste cuneatis et in petiolum decurrentibus, integris, supra glabris vel pilis minutis appressis et dispersis subtus pilis frequentioribus in costa et nervis, costa conspicua supra prominula et canaliculata subtus elevata, nervis secundariis utrinsecus 8–9 late patentibus et utrinque prominulis, nervis tertiariis et rete venularum utrinque subplanis; inflorescentiis terminalibus sessilibus sparsim puberulis pilis dispersis appressis albis vel stramineis ad 0.1 mm. longis, cymosis plerumque basi trichotomis ramificatione opposita inordinatescenti, sub anthesi $1.5\text{--}3.5 \times 2\text{--}6$ cm. et 30–50-floribus, bracteis subulatis vel linearibus ad 1 mm. longis apice acutis, pedicellis 1–3 mm. longis (sed sub fructu multo longioribus?); calycis limbo ad 1.5 mm. lato, calycis parte discreta ad 1 mm. longa cupulata et minute 5-denticulata, extus minute puberula intus glabra; corolla hypocraterimorpha vel anguste infundibulari, limbo 4.5–8 mm. lato, tubo 5–8 mm. longo ad medium 0.8–1.2 mm. lato extus glabro vel pilis dispersis intus glabro sed sub fauce hirsuto-villoso pilis albis laxis ad 1 mm. longis, corollae lobis 5 in aestivatione contortis ovatis $2\text{--}3.5 \times 1\text{--}2$ mm. apice acutis basi subcordatis intus minute et dense puberulis vel glabris; staminibus 5 sub corollae fauce insertis, filamentis circiter 0.5 mm. longis, antheris plus minusve dorsifixis clavatis circiter 2×0.8 mm. apice rotundatis vel emarginatis basi loculis in filamentum decurrentibus; ovario (hypanthio) subgloboso vel ellipsoideo $0.5\text{--}1 \times 0.5$ mm. minute puberulo biloculari, ovulis in quoque loculo solitariis et prope verticem loculi affixis, juxta dissepimentum aliquantum complanatis;

disco circiter 0.5 mm. alto in centro depresso; stylo ad 4 mm. longo filiformi vel subclavato glabro, stigmatе bifido in alabastro ad 0.5 mm. longo glabro, ultra corollae tubum vix exserto. Fructus jam ignoti vel fortasse ad speciem praesentem non referentes.

Airosperma vanuense is thus far known with certainty from only two collections from the island of Vanua Levu, Fiji. The type collection, cited below, was gathered in the province of Mathuata, near the Wainunu-Ndreketi Divide, May 17, 1934, from a shrub 3 meters tall growing in a dense forest at an altitude of 200–300 meters. The flowers are nearly mature in the holotype.

I am able to separate *Airosperma vanuense* from *A. trichotomum* on the basis of two floral characters. In the present species the corolla tubes are 5–8 mm. long, vs. only 1–2 mm. in *A. trichotomum*. Corolla tube length is undoubtedly a highly variable character in some Rubiaceae, apparently associated with various pollination adaptations in some species. However, in this instance the tube length is correlated with differences in pubescence: the corolla throats in *A. vanuense* are densely villose-hirsute with white hairs to 1 mm. long, while those of *A. trichotomum* are glabrous within. Pubescent corolla throats, as far as I am able to determine, are found in all New Guinean species of *Airosperma*, but none of those species approaches *A. vanuense* in the length of the corolla tube.

Since the diagnostic features of *Airosperma vanuense* are entirely floral characters, it is not possible for me to assign certain fruiting collections to this species without making undue assumptions. The abundant flowering material of *Airosperma* from Viti Levu is all readily assignable to *A. trichotomum*, and the fruiting specimens from the same island probably represent the same species. However, only two flowering collections are currently known from Vanua Levu; as a result, it is possible that some fruiting collections of *Airosperma* from that island may represent *A. trichotomum* rather than *A. vanuense*. Such fruiting collections, for the present probably best regarded as "aff. *vanuense*," include the following: Mt. Vatunivuamonde, Savu Savu Bay region, *Degener & Ordóñez 13964* (A, BISH, NY, UC, US); vicinity of Drayton Peak, *Bierhorst F154* (MASS); Taveuni, Mt. Manuka, *Smith 796* (BISH, GH, US), *8214* (BISH, GH, NY, UC, US). More field work and additional collections (especially from Vanua Levu) are required before the ranges of *A. trichotomum* and *A. vanuense* can be determined with accuracy.

SPECIMENS EXAMINED. **Fiji. Vanua Levu.** MATHUATA: Wainunu-Ndreketi Divide, *Smith 1849* (GH, holotype; BISH, NY, UC, US, isotypes). THAKAUNDROVE: Navavau, *Fiji Dept. Agr. 16046* (BISH).

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